

**Type of Project Request**

Planning Grant

**Project Title and Location**

Development and Implementation of a Model Program Strategy to Link Transportation, Infrastructure and Land Use Planning for the Berkeley Charleston Dorchester Region of South Carolina

**Application Organization**

Berkeley-Charleston-Dorchester Council of Governments  
Charleston, South Carolina Metropolitan Planning Organization (MPO)

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**Grant Request**

\$310,961

**Abstract**

The goal of this proposal is to evaluate past and future growth patterns and promote sustainable growth in the Berkeley, Charleston, and Dorchester region, the Berkeley-Charleston-Dorchester Council of Governments (BCDCOG). The proposed project builds on the previous work conducted by the BCDCOG utilizing satellite imagery to graphically depict growth patterns over twenty years in the region and using the identified patterns to project impacts for the future. The project will also include estimating the costs of sprawl. This includes an evaluation of environmental losses if growth patterns continue and a projection of fiscal costs from extending infrastructure to accommodate growth at the continued rate and pattern. Further, the project involves the compilation of alternative land use and growth pattern strategies and the identification of techniques that encourage organized and sustainable growth.

The principal intent of the project is to illustrate for policy makers and citizens the impacts and costs (in environmental losses as well as fiscal impacts) of particular growth patterns as experienced in the past twenty years, as well as to project those same impacts and costs if a similar pattern of growth is continued. From this, alternatives and recommendations will be developed to encourage smarter and more efficient growth. It is anticipated that the results of this project will assist counties and municipalities with implementing land use regulations, comprehensive plans, and other development related

tools which more effectively reflect the importance of practicing growth that integrates environmental protection with community and economic goals.

The Berkeley Charleston Dorchester region contains a population of more than one-half million. It consists of three counties and twenty-six municipalities, with the City of Charleston being the largest in population size. It is anticipated that this project will enhance the efficiency of the region's transportation system by more effectively managing growth in the region and addressing various quality of life issues.

## **II. PROJECT DESCRIPTION**

The Charleston, South Carolina Metropolitan Planning Organization (MPO) / Berkeley-Charleston-Dorchester Council of Governments (BCDCOG) proposes to develop a proactive model program with strategies and framework to link transportation and other infrastructure planning with land use planning. The MPO (and its member jurisdictions and organizations) and the BCDCOG (with its member governments), as well as various partners, interest groups, and stakeholders will team to accomplish this goal by gathering and analyzing needed data to evaluate and project growth patterns, determine the costs (both fiscal and environmental) of extending infrastructure to support these growth trends, develop planning tools and techniques to promote alternative sustainable growth patterns, document and disseminate the findings to policy makers, and establish an outreach program to the metropolitan region at large.

Within the region, development is outpacing population growth by an approximate factor of six to one. The BCD region has seen through the development of recent long range planning efforts that improving and building new roads in a reactionary manner is not the answer to eliminating congestion and maintaining the quality of life in the region. Currently, the majority of the MPO's transportation plan consists of improving inadequate facilities that have been overwhelmed by growth. With a rapid growth rate projected for the near future, other modes of transportation and coordinating land use policy must play a larger role in our transportation planning efforts for the future.

The success of the project largely depends on establishing partnerships with entities such as educational institutions, research organizations, environmental organizations, private sector development community, local governments, and other partners (some of which have not traditionally been part of the planning process) for the purpose of establishing methodologies to fulfill the tasks identified as follows.

The initial activity of the project will build on the previous work conducted by the BCDCOG utilizing satellite imagery to graphically depict growth patterns over twenty years in the region and using the identified patterns to project impacts for the future. In addition, this phase includes the formation of a coalition of partners and stakeholders, such as local governments, state and federal government agencies, transportation providers and interest groups (such as public transit, bicycle/pedestrian, job access, safety, and freight movement), environmental interest groups, community preservation

and urban design interest groups, public utility / service providers (such as water, sewer, and school systems), university research groups, economic development efforts, and private sector developers, as well as the general public.

Subsequent tasks involve estimating the costs of current development trends. This includes an evaluation of environmental losses if growth patterns continue, as well as a projection of fiscal costs from extending infrastructure to accommodate growth at the continued rate and pattern. Both positive and negative impacts of development will be examined.

Conclusive activities include the development of planning tools, techniques, and strategies for sustainable growth, as well as dissemination of research results and analysis to policy makers for implementation. [Example: Incorporation of strategies in the 2003 update of the MPO Long Range Transportation Plan, as well as 2004 City and County Comprehensive Plan Updates (as required by South Carolina Planning Legislation), in an effort to reduce the need for costly infrastructure improvements in the future.] Tools, strategies, and techniques for sustainable development will be developed by both the regional and local level. Research results will be provided to policy makers and pertinent entities and documents will be produced detailing findings and recommendations.

### **Geographic Scale**

The Berkeley, Charleston, and Dorchester region contains a population of more than one-half million. It consists of three counties and twenty-six municipalities, with the City of Charleston being the largest in population size. The BCDCOG staffs the Metropolitan Planning Organization serving this tri-county region.

### **Expected Results**

The principle intent of the project is to illustrate for policy makers and citizens the impacts and costs (in environmental losses and fiscal impacts) of particular growth patterns as experienced in the past twenty years, as well as to project those same impacts and costs if a similar pattern of growth is continued. From this, alternatives and recommendations will be developed to encourage smarter and more efficient growth.

#### ***a. Short Term Results***

It is anticipated that the short range results of this project will assist counties and municipalities in implementing zoning and land development codes, traffic calming and access management plans, community preservation and urban design plans, comprehensive plans, and other planning / development related tools which more effectively reflect the importance of promoting growth patterns that integrate environmental protection, infrastructure / community facility planning with land use planning and goals. This will enlighten elected officials and the public on the pertinent issues and also result in the increased involvement of nontraditional affected parties in the planning process.

#### ***b. Long Term Results (20-40 years)***

Long range results have the capability of promoting policy changes that will improve the efficiency and safety of the transportation system, promote pedestrian friendly and pedestrian oriented development patterns, promote efficient access to

jobs, services, and centers of trade, reduce negative impacts of transportation, other infrastructure facilities, and resulting land uses on the environment, reduce the need for costly future public infrastructure investment, and influence private sector development techniques and patterns. In general, the model program will result in more efficient and sustainable development patterns in the tri-county region while accommodating desired growth.

### **Vision for the Ultimate Impact of the Project**

The vision for the ultimate impact of this Transportation and Community and System Preservation project is a metropolitan region that has encouraged sustainable growth patterns and is proactive (not reactive) to growth trends.

## **III. PURPOSE AND CRITERIA**

Involvement and awareness in transportation related issues has been increasing throughout the region. Residents are happy with the economic growth that the region has been experiencing, but at the same time, residents also are becoming more politically restive about the unpleasant and disconcerting consequences of unmanaged growth, a quickening pace of life, rising taxes, lessening of community identity, and a fragmented landscape. This is demonstrated through increased community involvement in the various transportation facility issues that are currently existing in the region. For example, much opposition from elected officials, local citizens, environmental organizations, and other entities surfaced with the proposal of locating the future Interstate 73 in the region. Concerns were expressed regarding the growth patterns that would result, as well as the fragmentation of the community and environmental landscape. Similar concerns have been expressed regarding other major proposed transportation projects in the region. Further, as outlined in each of the newly created county comprehensive plans, all three counties support policies to promote transportation and infrastructure investments that permit development patterns that preserve communities and that do not strip the region of its environmental resources.

The overall purpose of this TCSP project is to disseminate information to policy makers, private sector developers, and citizens about present and potential patterns of growth if current trends continue, the environmental and fiscal impacts of this pattern of development, and the alternatives and strategies to better manage and direct development. The purpose of this project is not to discourage growth, but to encourage higher quality growth patterns by directing development to certain areas, where infrastructure exists or is planned, and protecting open lands. This can be achieved through public awareness and education and encouraged through coordination of infrastructure and land use planning, more effective land use regulations, the removal of barriers to sustainable development proposals, and strong comprehensive plans. As indicated in the project description section, the fulfillment of this project largely depends on establishing partnerships with entities such as educational institutions, research organizations, environmental organizations, local governments, etc. in establishing methodologies to fulfill the three principle goals of the project.

Specifically, the three principle goals of the project are: (1) to illustrate for policy makers and citizens the regional growth patterns and the impacts of growth over the past twenty years and in the future; (2) to illustrate for policy makers and citizens an evaluation of environmental losses and the costs of infrastructure if growth patterns and trends continue; and (3) to develop more efficient and sustainable growth alternatives and recommendations for development that, once implemented, can improve the efficiency of the transportation system, promote efficient access to jobs / services / centers of trade, reduce the adverse impacts on the environment, reduce the need for costly future investment in public infrastructure, and encourage private sector leadership in promoting sustainable development patterns. The methodologies and results derived from the project will be documented and disseminated to policy makers and interested entities.

### **Analysis of Regional Growth Patterns**

The scope of work will build on a previous project conducted by the BCDCOG [a research grant from the National Aeronautics and Space Administration (NASA) Office of Mission to Planet Earth (MTPE)] to utilize satellite imagery to graphically depict regional growth patterns. The COG has been able to evaluate urban growth patterns in the tri-county area from 1973 to 1994 (see map on the following page). With various partners, the COG analyzed and disseminated growth pattern information derived from the analysis of approximately twelve Landsat satellite scenes over the 1973 to 1994 time period. The project also involved, after the refinement and development of both analytical and delivery methodologies and procedures for more effective integration of the urban change data into local planning processes, the incorporation of the twelve urban change dates of image data into the geographic information systems (GIS) of local planning organizations. To analyze the effect of key transportation routes and other infrastructure improvements, local planners and GIS managers initiated efforts to interpret urbanization processes through time, relative to individual infrastructural, residential, commercial and industrial developments known and documented by the local planning agencies.

The proposal efforts will build on the growth pattern and growth rate data obtained through the NASA / BCDCOG project, and thence, through partnerships, a methodology for projecting future growth patterns will be developed. Through the proposed TCSP project, the COG will provide local planners, policy makers, and citizens with a more detailed analysis of past growth patterns (such as land consumption patterns, environmental issues, growth pattern comparisons and analyses for different areas of the region, successful transportation routes in linking job and commercial centers or green areas to residential areas, transportation routes that have opened new areas to development, land use patterns that have destroyed the success of earlier transportation routes, etc.) and projection of future regional growth patterns. The analysis of both past and future growth patterns will involve examining not only the negative costs and issues that have arisen from development patterns or that may arise if development patterns remain the same, but also, the gains and benefits that have resulted from past development patterns and the gains and benefits that may be realized if future development patterns remain the same. This will allow policy makers, local citizens, and

other entities to make an educated decision about the most effective and suitable development pattern for the region.

The growth pattern information and methodology will be available to various entities throughout the region (as well as entities nationwide who can utilize the developed methodology) to inform them of development trends and provide them with a projection of the development that will occur in the future. Further, to accurately identify areas where development is likely to occur, teams of local planners, representatives of utility entities and environmental groups, private sector developers, and other partners familiar with development trends will be assembled to discuss the developable land situation. Through the existing patterns of development, information obtained through this process, and other relevant information (such as land use regulations, comprehensive plan information, and infrastructure and community facility plans), the BCDCOG staff will be able to determine the likely location and intensity of future development. The resultant projected development patterns will be incorporated into the COG's GIS system for presentation and dissemination purposes.

All working teams and advisory groups/committees will be representative of the entire region so that the understanding and support for sustainable growth is enhanced. Committees will generally guide project programs, be of valuable assistance to staff in gathering detailed information concerning zoning limitations, comprehensive plans, and planned infrastructure improvements, and help make decisions and assumptions necessary to project population growth and development patterns. Also, the continued involvement will further incline interested parties to implement the recommended actions for sustainable development. Further, some form of advisory committee will be continued, possibly as a standing advisory committee of the MPO, in an ongoing effort to encourage the goals of the TCSP project.

### **Analysis of Environmental and Fiscal Costs**

A complementary scope of work will be to illustrate for policy makers and citizens the costs of current development patterns that do not link land use and infrastructure planning efforts. This includes both an evaluation of environmental losses if growth patterns continue and an examination of the fiscal impact to the public sector to extend infrastructure to accommodate this growth at the projected rate and pattern. Other costs that may not be quantitatively measurable (such as quality of life issues, urban design issues, social equity issues, etc.) will be identified to the local jurisdictions as part of the documentation and dissemination of environmental loss and infrastructure cost information.

Environmental losses due to unmanaged growth include the degradation of water and air quality, loss of forests, agricultural lands, and other green space, and destruction and fragmentation of wildlife habitats. Also, a community's rural character can be destroyed by degrading the aesthetic qualities of the countryside and traditional towns. According to the preliminary analysis of growth patterns in the tri-county region, unmanaged residential and commercial development is outpacing population growth by a factor of six

to one. Simply, a sprawl pattern of growth can and is devouring huge amounts of land that could be preserved with more thoughtful managed development.

Infrastructure costs include those costs associated with the extension of infrastructure to accommodate development. They include the costs associated with constructing roads, rising housing prices, increased property taxes and increased costs for local governments, which must raise taxes to provide police protection, fire protection, education facilities, water and sewer and other services to development. Essentially, the continued construction of roads, utilities, and other infrastructure into undeveloped lands can promote development that saps the vitality of already developed areas. In addition, this pattern results in an ever increasing system of infrastructure (roads, water and sewer lines, etc. to maintain).

The established methodology for estimated the environmental and fiscal costs of sprawl development will be created through partnerships for assistance in disciplines not available at BCDCOG. Costs for these consulting services will be kept at a minimum by partnering with organizations that are working on complementary efforts. Information, as well as services can be shared. As part of this methodology, regional growth rates and patterns identified for the past twenty years, as well as future growth patterns (based on past development patterns) will be used to determine the costs of sprawl in the past and the future costs should development continue at the same rate and pattern. Additionally, input from the close coordination of project staff with the staffs of the various jurisdictions (county, municipal, special purpose districts, etc.) regarding existing land use regulations, comprehensive plans, and infrastructure plans will further strengthen the analysis of the costs of unmanaged growth patterns.

### **Strategies and Techniques for Managing Growth**

Once the pattern and rate of growth in the region are identified and the environmental loss and fiscal impact of this growth are evaluated, the scope of work will involve the extensive analysis and compilation of alternative land use and growth pattern strategies and the identification of techniques that encourage more organized and sustainable growth. Identifying planning tools and techniques that can lead to smarter growth patterns, as well as identifying barriers to those patterns will assist municipalities with creating and implementing zoning and other land use regulations and incentives, comprehensive plans, and other development related tools that result in more effective and sustainable growth patterns. The potential for adoption of these planning and development tools that reflect sustainable growth and that are the most useful and acceptable in the region will be strengthened by the creation of a sustainable growth steering committee fully representative of the tri-county region (including citizen and grassroot groups). Additionally, the BCDCOG's role in providing planning services within the tri-county region affords the COG the opportunity to encourage implementation of project results into municipal and county comprehensive plans and updates (since all local land use regulations flow from the comprehensive plan and the comprehensive plan outlines the pattern for future development in the jurisdiction and strengthens community support of managed growth). Further, the COG's role in staffing the regional transportation planning process, water quality planning process, and future

coordination of regional infrastructure plans, which was recently mandated by the South Carolina Legislature, will further encourage the implementation of project results. The identified strategies and techniques will focus on those that can be implemented at the local level and encouraged/recommended at the regional level and will be designed to be easily transferable to other areas of the state. To most effectively address the growth pattern issue, these strategies and techniques should be complemented with strategies and techniques that are implemented at the federal and state levels (such as legislative actions and policy changes). The efforts of this project may encourage the state to initiate actions to more effectively address this issue.

Sustainable growth alternatives and planning techniques will demonstrate the range of environmental, economic, transportation system efficiency, and community preservation / quality of life benefits associated with alternative development patterns. Some alternatives will apply to the region as a whole, while many will depend on the existing resources and development goals of each municipality or county. Possible strategies to encourage alternative growth patterns that reduce adverse impacts on the environment, promote efficient access to jobs, services, and centers of trade, as well as reducing the need to extend and improve infrastructure, may be incorporated into comprehensive plans. Implementation of the plans may include land use regulation and incentive changes to allow greater flexibility and such alternatives as increased densities and incentives to development in the urbanized areas, clustering in the rural areas, neo-traditional developments that utilize mixed use development, and transit / pedestrian friendly forms of development. Additional techniques identified may also be non-regulatory, such as land acquisition and conservation easement initiatives, transfer of development rights, and greenbelts to protect environmental resources and preserve open space; transit investments and policies and auto dependency reduction strategies and techniques; and traffic calming and access management plans that improve the safety and efficiency of the transportation system.

Although difficult to achieve, perhaps the most effective strategy for combating sprawl involves cooperation among counties and communities within the region. The best hope of success in controlling sprawl lies in cooperation among local governments in developing regional strategies, land use policies, and regulatory mechanisms. In some cases, a disparity between city and county zoning laws exists, and further, throughout the region, many zoning laws were designed in a manner that encourages sprawl development. It is anticipated that the regional participation of policy makers and citizens in this project will result in increased consistency between city and county zoning laws (and a greater acceptance of the potentially destructive effects of conventional zoning laws) and the development of regional strategies to combat sprawl.

The importance of establishing local and regional strategies and techniques to more properly manage growth is further evident due to the lack of statewide planning. This enhances the role and importance of an entity such as the COG in generating involvement in the growth pattern/sprawl issue, educating the region about the issue (since many people are simply not aware of the costs of sprawl and the alternatives to it), and devising a regional/local program for addressing the issue.



## **Products**

Experiences gained in the project include a methodology to utilize satellite imagery to project future growth patterns, methodologies for determining the environmental and infrastructure costs of sprawl, and sustainable development alternatives for implementation in planning and zoning tools. The methodologies, research results, and alternatives of the model program will be documented and disseminated to policy makers, interested entities, and communities throughout the region for advocacy and implementation. Research results detailing findings and recommendations will be provided to policy makers and pertinent entities. Local communities will be strongly encouraged to implement to some degree the results obtained from the development of alternative land use and growth pattern strategies and techniques.

Additionally, a general, regional future growth pattern will be created based on the information derived from the satellite imagery and the incorporation of a variety of strategies and techniques designed to functionally manage growth. This will provide a broad, general comparison of environmental and fiscal costs for a scenario that assumes development patterns remain the same due to local regulations and policies remaining unchanged and a scenario that assumes development patterns change due to the implementation of a variety of innovative strategies and techniques designed to more effectively manage growth. It is anticipated that the results of this general scenario, as well as other findings from the project will generate public awareness and stimulate community support for the modification of local land use regulations and policies and the incorporation of techniques for managing growth.

Further, the model program will be transferable to other regions and communities throughout the state and nation, potentially resulting in the application of the methodologies and alternatives to various communities and regions in the state and perhaps the nation. Documentation of the model program will provide other areas outside of the region with a sample methodology to more effectively guide future development.

Documentation will stress the need for a broad-based acknowledgement of the need to explore new paths focusing on a regional scale that involve a combination of political, business, citizen, median, and special interest groups. Specifically, documentation will include:

- ☐ a public brochure outlining pertinent issues and the objectives of the project
- ☐ publicized status reports
- ☐ technical reports of the methodologies utilized for estimating environmental and fiscal costs and how cost analyses can be used nationwide for comparing the costs of different development types
- ☐ interim report detailing regional past and projected environmental and fiscal costs
- ☐ planning outreach document that outlines (1) strategies and techniques tailored to the BCD region and (2) the model program which identifies all methodologies utilized to project future growth patterns, to estimate the environmental and fiscal costs of unmanaged growth, and to identify various strategies and techniques that may be

implemented to more effectively manage growth. The model program will be valuable to other entities nationwide in establishing similar programs for planning programs and for modifying local land use regulations to more effectively guide development.

Also, as part of the documentation / dissemination efforts, the COG will provide an on-going support and outreach program to local governments in their efforts to strengthen their planning processes and development regulations.

### **Objectives**

Specifically, the project furthers and integrates each of the following objectives as required by the TCSP program.

#### **❑ Improve the Efficiency of the Transportation System**

From 1973 to 1994, the Charleston metropolitan population grew 41 percent while the urbanized area spread by 255 percent. This type of development pattern has resulted in increased infrastructure costs, environmental losses, and certain quality of life concerns. With the region projected to experience rapid growth over the next twenty years, the importance of establishing a proactive approach to provide for the most fiscally and environmentally healthy pattern of growth in the region is evident. In order to allow the region to grow in a more compact pattern, this proposal calls for the identification and recommendation of a variety of innovative strategies and techniques designed to allow the region to effectively manage growth. Strategies and techniques, both regulatory and non-regulatory, are designed to primarily guide development to areas where infrastructure and services already exist or where they are planned and away from environmentally sensitive areas in order maximize the use of existing regional infrastructure.

#### **❑ Reduce the Impacts of Transportation on the Environment**

Part of the project involves developing a methodology for analyzing the environmental losses that have occurred over the last twenty years and those that may occur should development patterns remain the same. From this methodology, past and future environmental losses will be calculated with the results disseminated to local policy makers, citizens, and other interested entities. The results from these analyses should assist in influencing local decision makers and advocacy groups about the immediate need for making smart transportation investments. Further, as indicated above, strategies and techniques will be identified to lessen the impact of future development on environmental resources. The implementation of suitable strategies and techniques, specifically those related to enhancing the efficiency of the transportation system, will reduce the negative impacts of transportation investments on the environment by achieving a balance in the provision of transportation services and the preservation of the environment.

#### **❑ Reduce the Need for Costly Future Investments in Public Infrastructure**

Part of the project involves developing a methodology for analyzing the infrastructure costs that have occurred over the last twenty years and those that may occur should

development patterns remain the same. From this methodology, past and future infrastructure costs will be calculated with the results disseminated to local policy makers, citizens, and other interested entities. The results from these analyses should assist in influencing local decision makers and advocacy groups about the future regional infrastructure costs should development patterns remain the same and the immediate need for making smart infrastructure investments. Further, strategies and techniques will be identified to assist in ensuring that smart infrastructure investments are made. The goal is to achieve a balance in the provision of infrastructure investments where development pressures make necessary while limiting the costly infrastructure investments that surface when development is not properly managed.

❑ **Ensure Efficient Access to Jobs, Services, and Centers of Trade**

Sprawl development patterns have led to increasingly longer trips, poor pedestrian access, traffic congestion, and adverse environmental impacts. These factors are diminishing the quality of life in the region, reducing the effective and efficient operation of public transportation systems, and creating an imbalance in jobs/services and housing. When jobs and services are not located in close proximity to housing, access to jobs and services proves increasingly difficult for certain disadvantaged groups. As previously mentioned, the project involves the creation and identification of innovative strategies and techniques to promote compact development patterns. These may include supporting and expanding certain transit initiatives and services to more effectively allow the commute of those who do not have access to autos, which includes improving the access to transit systems, since transit provides the lifeline to many jobs, educational opportunities, and other needed community services; encouraging mixed-use developments (and transit and pedestrian oriented developments), etc. that locate housing and jobs (and other services and necessities) in close proximity to one another; and ensuring that transit is considering in land use decisions. The siting of schools, businesses, recreation facilities, health centers, religious institutions, and other similar land use decisions can be made with transit facilities and services in mind. It is anticipated that the identification and promotion of these types of strategies and techniques will assist in ensuring efficient access to jobs, services, and centers of trade throughout the region.

❑ **Examine Development Patterns and Identify Strategies to Encourage Private Sector Development Patterns Which Achieve the Goals of the TCSP**

Part of the project involves the examination of both past and future development patterns. This exercise will illustrate how transportation and infrastructure investment decisions have generated much private sector development patterns in areas throughout the region that were previously undeveloped. It is anticipated, through environmental and fiscal cost analyses, that the demonstrated past and future development patterns have and will impose significant environmental and fiscal burdens on the region. In order to more effectively manage growth, strategies and techniques will be created and identified to guide private sector development primarily to areas where infrastructure already exists or where it is planned. These strategies and techniques include regulatory mechanisms such as zoning and also other tools that are designed to promote concepts such as infill development, etc. Further, efforts will include involving local officials and residents in

the process in order to generate support for innovative land use management practices and to inform them of the economic and environmental benefits of compact development patterns.

#### **IV. COORDINATION**

The project proposal is consistent with State and Metropolitan Planning processes and will build upon the cooperative effort developed among the MPO (staff of BCDCOG), South Carolina DOT, and FHWA / FTA during the years of ISTEA. Under TEA-21 the MPO plans to continue and improve the planning process, and the TCSP project will allow this enhancement of the process to be accelerated and to exceed requirements. In fact, the methodologies and strategies developed (regarding linking transportation and land use planning) could serve as an example for future transportation legislation requirements of MPO's.

South Carolina Councils of Government including BCDCOG serve as rural transportation planning organizations in cooperation with SCDOT. In addition, many jurisdictions depend on the BCDCOG for local planning services, such as land use regulation and comprehensive planning. The BCDCOG also serves as the regional planning agency for the Clean Water Act's 208 Water Quality Management Plan.

#### **V. PARTNERS**

The partnership for this proposal is built on an ongoing partnership between the Charleston Area Transportation Study (CHATS) Metropolitan Planning Organization (MPO) and the regional planning organization, the Berkeley-Charleston-Dorchester Council of Governments. The BCDCOG has staffed the MPO process in this region since the 1970's, and through a recent SCDOT program serves as the rural transportation planning agency. The COG and MPO are both partnerships of local governments, as well as other interest groups. In the first few months the proposed project would build on this existing regional cooperation by investigating, developing, and confirming a coalition of planning and implementation partners that includes local governments, state and federal government agencies, environmental interest groups, community preservation and urban design interest groups (such as community development corporations, neighborhood associations), transportation providers (such as regional transit authority, human service providers) and interest groups (such as bicycle, pedestrian, job access, public transit, safety, freight movement), public utility / service providers (such as water, sewer, school systems), university research groups, economic development efforts, and private sector developers, as well as the general public, with special emphasis on targeting for input not traditionally involved in the planning process. These partners and stakeholders will be formalized into working and advisory committees to oversee the TCSP project direction and progress.

## **VI. PROJECT SCHEDULE**

### **□ Year One - (May 1999 - April 2000) Scope:**

- Build coalition of eventual implementation partners / stakeholders.
- Identify and gather data and information needed for development of growth patterns and projections, as well as information linking land use patterns to infrastructure needs.
- Project growth/development patterns based on past trends and current regulations
- Develop methodology to determine costs (both fiscal impacts to the public sector and environmental losses) to accommodate projected growth patterns, as well as the resulting infrastructure needs.

#### Products:

1. Organized working teams and advisory committees.
2. Public awareness brochure.
3. Technical documentation on methodology and data collection / projects and research regarding evaluation of growth patterns and trends.
4. Bi-monthly evaluation status reports.

### **□ Year Two - (May 2000 - April 2001) Scope:**

- Implement methodologies to project costs of growth trends
- Develop planning tools and strategies that can lead to sustainable growth patterns and investigate the barriers to alternative growth patterns. Disseminate results to policy makers, outreach / technical assistance regarding alternative growth pattern strategies, as well as formalizing an ongoing effort in the metropolitan region to coordinate land use and infrastructure planning by the metropolitan planning organization and other regional organizations, member jurisdictions (cities and counties), transportation and infrastructure providers, and the private sector.
- Evaluate project accomplishments and potential for long range regional impacts.

#### Products:

1. Interim reports of project findings including GIS mapping of results / storage of data
  - Report of findings for other planning professionals.
  - Report of findings in a format for the general public.
2. Planning outreach materials
  - Model program summary for linking land use and transportation / infrastructure planning.
  - Documentation of alternative development strategies and proposed planning tools and techniques to guide smart growth and lessen future infrastructure needs.
3. Bi-monthly project evaluation status reports and final project evaluation.

## VII. BUDGET

Resources devoted to this project or complementing this project (through previous work providing this opportunity and ongoing projects that will impact this project, and/or result from this project) include FHWA Planning (PL), FTA Section 5303, NASA (MTPE), state funding, local government financial contributions to the BCDCOG, local government comprehensive planning investments, in kind services of local planners, citizens, and other participants in the proposed project coalition committees.

### Budget

		<b>Federal</b>	<b>Local</b>	<b>Total</b>
Personnel		\$85,777	\$8,275	\$94,052
Fringe Benefits	49.31% benefits rate	\$42,296	\$4,081	\$46,377
Indirect Charges	67.75% indirect costs rate	\$86,771	\$8,371	\$95,142
Contractual Services	Consultant in fiscal costs of extending public infrastructure and environmental consultant	\$91,201	\$8,799	\$100,000
Printing and Supplies	Mapping, document printing costs and supplies	\$3,010	\$290	\$3,300
Travel	Attendance—TCSP program workshops	\$1,906	\$184	\$2,090
<b>Total project budget</b>		<b>\$310,961</b>	<b>\$30,000</b>	<b>\$340,961</b>

NOTE: local contribution consists of \$15,000 a year for two year program—equals \$30,000

	<b>Hours</b>	<b>Personnel Costs</b>
Intern (40 hours/week, 4 months total)	1,440	\$11,520
Planning Services Manager (15%), Planner I (25%), Planner II (25%) over two years	2,912	\$50,038
Information Resources Manager (15%), Information Resources I (25%) over	1,872	\$32,494
<b>Total</b>	<b>6,224</b>	<b>\$94,052</b>

## **VIII. EVALUATION**

In order to track the effectiveness of linking transportation, other infrastructure, land use, environmental, and community planning, the BCDCOG proposes to conduct a systematic evaluation during and after the project's completion. A thorough evaluation of the process and its outcomes is essential for repeat success and improvement for similar future programs.

This evaluation will measure both quantitatively and qualitatively the process, products, and expected outcomes of the project. By looking at each of these steps, the evaluation can clearly document where it has been most successful and where improvements can be made.

As part of the evaluation process the BCDCOG proposed to include an ongoing critical assessment of the process and documented successes, problems and suggestions for improvement in the process. This part of the evaluation will begin at the project's inception and will continue after the project's completion.

The evaluation of the products and outcomes will rely heavily on analysis of data that is already housed and tracked at the BCDCOG, including the use of the transportation computer simulation, building permit records, and sewer line extension permits. **A detailed draft evaluation plan has been prepared and is included for your review in appendix A of this document.**

## APPENDIX A: Draft Evaluation Plan

### I. Introduction

In order to track the effectiveness of linking transportation, other infrastructure, land use, environmental, and community planning, the BCDCOG proposes to conduct a systematic evaluation during and after the project's completion. A thorough evaluation of the process and its outcomes is essential for duplication and improvement of future programs.

As part of its current functions the BCDCOG tracks a variety of regional indicators that can be utilized in analyzing the effectiveness of this program. Councils of Governments are generally depositories for a variety of data sources, including census and housing. The BCDCOG tracks new construction in the region on a quarterly basis. Every year the COG pulls together a variety of economic indicators including commercial and residential construction, real estate sales, employment, and population estimates. This data is broken down by municipality and planning area and is published by the COG in the *Regional Indicators* booklet. The information provided in this publication provides long-range trends and be used to show changes in development patterns.

The BCDCOG also serves as staff for the region's metropolitan planning organization (MPO). As well in South Carolina COG's serve as rural regional transportation organizations. The BCDCOG serves in this role for the rural portion of this region. In these capacities, the BCDCOG provides various transportation related services including the preparation of the region's transportation plan and the projection and evaluation of the future effectiveness of the region's transportation system. Also in these roles, with its information resources and capabilities, the COG is able to identify regional transportation needs and to evaluate regional growth patterns that are effected by certain transportation investment decisions.

In addition to being a depository for census data, the BCDCOG is the regional planning organization for the Clean Water Act's 208 Water Quality Management Plan. In this capacity, the BCDCOG keeps record of planned sewer infrastructure in the region and reviews all proposed sewer extensions and expansions for consistency with the Regional Water Quality Management Plan. As part of the review, the BCDCOG maps where sewer extensions permits are granted and the number and type of use to be served. This information can be very useful in tracking infrastructure development, changes in

#### List of Available Data

- Yearly and special traffic count data
- 1990 and 2015 TAZ data for population, housing units, motor vehicles, school enrollment, labor force, employment, and retail sales
- Residential Building Permits
- Commercial Construction Permits
- Unemployment Figures
- 1990 Census Data and upcoming 2000 Census Data available in 2002
- Population Estimates (county and place level)
- Census Estimates (zip, tract, and block group level)
- New Water Connections
- Vial Statistics (mortality, disease, etc.)
- Education
- Crime Statistics
- Wage Surveys
- Income
- Statistical Abstracts (SC and US)
- HUD data
- CHATS data
- Parks/Recreation/Tourism data
- Location of Water and Sewer Lines
- Endangered Species



infrastructure trends, and correlation with infrastructure investment to commercial and residential investments.

This evaluation will measure both quantitatively and qualitatively the process, products, and expected outcomes of the project. By looking at each of these steps, the evaluation can clearly document where it has been most successful and where improvements can be made.

## **II. Process Evaluation**

As part of the evaluation process the BCDCOG proposed to include an ongoing critical assessment of the process and documented successes, problems and suggestions for improvement in the process. This part of the evaluation will begin at the project's inception and will continue after the project's completion. The evaluation will document where goals and objectives of the planning process have been met, and when not met an analysis to determine why they were not met.

### **Objectives**

The process evaluation will perform bi-monthly reviews of the following criteria:

- Identification and inclusion of non-traditional groups.
- Process leading to scheduled milestones.
- Process ability to remain on schedule.
- Identification of barriers encountered and steps that can be taken to overcome them.

Results of the process evaluation will be posted on the Berkeley-Charleston-Dorchester Council of Governments web page. Interested parties and other regional governments will have the opportunity to watch the project's progress and interact with the participants through cyberspace. By making the process readily available to other areas in the country, the project will benefit from the assessment and experience of outside organizations and, in turn, other agencies will given the opportunity to benefit from our experiences prior to project's completion.

### **Roles and Responsibilities**

In order to keep a fresh perspective on the evaluation the process evaluation will be directed by a staff member that is not directly involved with the project. The bi-monthly evaluation will include meetings with the committees to discuss the process and their input on its progress. Based on the information learned from these interim evaluations, changes can be made during the project to improve on weak areas and to direct its focus on increasing successes.

At project completion, the process evaluation will turn towards an overall evaluation. The staff member will continue working with the committees during this review. In addition the evaluator will survey individuals and organization that were targeted for participation within the process whether they participated or not.

### **Performance Measures and Evaluation Methodologies**

During the planning process the evaluation staff member and committees will review the participation of partners and document number, diversity, and amount of public interest in the process. Short falls in expected participation will result in increased efforts to increase participation. Increased efforts may include interviews with identified groups that have chosen not to participate to determine why and additional public outreach to targeted groups. At the end of the project, in order to determine whether the goal of ***increased participation of non-traditional partners*** was achieved the evaluation will compare the number and types of groups involved in the process with past MPO planning efforts. This evaluation will quantitatively measure increases through utilization of attendance records and meeting minutes to document number, diversity, and amount of contribution.

When working to increase participation in the process by non-traditional partners, the planning process will target participation by groups that assist in ***broadening the scope and impact of process to integrate transportation, community preservation, and environmental activities***. There are many planning processes that occur in the region, and several of these processes lack coordination with other planning processes. In order to effectively integrate a variety of activities, the people involved in these processes need to play a part in the TCSP program. While reviewing the attendance records for measuring increased participation, the evaluator will also categorize the background of the partner and other planning processes in which they are involved.

Another objective of the planning process is to remain ***consistent with the statewide and MPO planning process***. This objective is important in order to legitimize the process and help to insure inclusion of the project's outcomes in the plans and programs. Performance measures of this objective include: ideas included in MPO plans, TIP, and STIP, and non-traditional partners are given a larger role in MPO process. The evaluation will survey existing and future plans and programs and compare goals with the recommendations produced through the TCSP planning process. Any shift in policies and procedures, or inclusion of specific recommendations in the process will be documented.

***Broadening public understanding of planning processes and governmental operations*** is also an important objective of the process. The success of developing and implementing new public policies often depends on the understanding and support of the public. Comparison of public publications before and after the process along with documentation of public meeting attendance and opportunities for public comments will be used to measure the public's access to information and expanded opportunity to provide input.

Another objective involving encouragement of public participation is to have a ***process that is responsive to public concerns***. A process that does not integrate public concerns, no matter how much attention to increasing public participation, will not be able to retain public involvement or buy-in. By comparing the minutes of public meetings and public comments given to the ultimate goals and recommendations in the final plan, the

evaluator will be able to document the whether the plan's recommendations are representative of the public and organizations that participated, though not formally on a committee.

The evaluation will review whether the project ***remained on schedule and achieved identified milestones***. It is important to remain on schedule with the project in order to maintain a high level of interest from the participants and to produce results that can be used in other plan updates. The identified schedule and milestones (such as document production) will be reviewed during the process to chart the planning process's progress. After the planning process the evaluation will compare the projected schedule and milestones and the actual schedule and milestones achieved. This part of the evaluation will ensure that during future projects the time allotted for portions of the planning process will be adequate for achieving the desired results.

Table 1: Process Evaluation Table		
Objectives	Performance Measures	Evaluation Methods
<b><i>Increase participation of non-traditional partners as well as continued and enhanced participation by traditional partners including:</i></b> <ul style="list-style-type: none"> <li>• SCDOT/FHWA/FTA</li> <li>• Transit providers</li> <li>• Local governments</li> <li>• Safety organizations</li> <li>• Freight movement groups</li> <li>• Public utility service providers</li> <li>• Environmental interest groups</li> <li>• Pedestrian/bicycle interest groups</li> <li>• Neighborhood associations</li> </ul>	Number/type of groups involved including: <ul style="list-style-type: none"> <li>• Economic development organizations/industrial groups</li> <li>• Private land development organizations</li> <li>• Home builder associations</li> <li>• Real estate investors</li> <li>• Environmental organizations</li> <li>• Neighborhood organizations</li> <li>• Community development groups</li> <li>• Sustainable development groups</li> <li>• Human service and job access providers</li> <li>• Traditionally under served populations</li> <li>• Public utility operators</li> <li>• Non-profit organizations</li> <li>• Governmental commissions</li> </ul>	<ul style="list-style-type: none"> <li>• Number of participants in MPO process before and after project.</li> <li>• Diversity of participants in process before and after project.</li> <li>• Documented contribution of groups – ideas, resources, financial backing.</li> <li>• Documented spin-off organizations due to process.</li> </ul>
<b><i>Broadens scope and impact of planning process to integrate transportation, community preservation, and environmental activities.</i></b>	<ul style="list-style-type: none"> <li>• Includes a broader base of players who are involved in own planning processes in the region.</li> </ul>	<ul style="list-style-type: none"> <li>• Survey area plans and planning processes and determine number of representatives involved in TCSP process.</li> </ul>
	<ul style="list-style-type: none"> <li>• Explores new methods of doing business.</li> <li>• Explores unintended impacts of policies on private individuals and businesses as well as environmental impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• Review attendance by public, private, and non-profit organizations.</li> </ul>
<b><i>Consistency with Statewide and MPO planning process.</i></b>	<ul style="list-style-type: none"> <li>• Ideas included in local, regional, and state plans and programs.</li> <li>• Non-traditional partners given more roles in MPO process.</li> </ul>	<ul style="list-style-type: none"> <li>• Document how ideas produced from planning process are included in plans and programs.</li> </ul>
<b><i>Broadens public understanding of planning processes and governmental operations.</i></b>	<ul style="list-style-type: none"> <li>• Increased public attendance and review of MPO planning documentation.</li> </ul>	<ul style="list-style-type: none"> <li>• Document number of people who review TIP, make comments and attend meetings.</li> </ul>
	<ul style="list-style-type: none"> <li>• Informed and involved citizens with access to public records and the decision-making process</li> </ul>	<ul style="list-style-type: none"> <li>• Examples of public publications informing citizens of the process</li> </ul>
	<ul style="list-style-type: none"> <li>• Ample opportunity for public comment when the final plan differs from the draft.</li> </ul>	<ul style="list-style-type: none"> <li>• Document public meetings and expanded opportunities for comment.</li> </ul>
<b><i>Responsive to public concerns.</i></b>	<ul style="list-style-type: none"> <li>• Policies in plan represent comments made by public and organizations.</li> </ul>	<ul style="list-style-type: none"> <li>• Compare minutes with final document.</li> </ul>
<b><i>Remains on schedule and achieves identified milestones.</i></b>	<ul style="list-style-type: none"> <li>• Scheduled milestones are completed.</li> </ul>	<ul style="list-style-type: none"> <li>• Document completion of milestones.</li> </ul>

### III. Product Evaluation

Throughout the planning process several types of documents will be produced for use by the public, participants, policy makers, and other interested parties. The effectiveness of these documents on reaching and informing their intended audience is an important part to achieving the desired outcomes of the project.

The product evaluation will focus on what was produced by the planning activity. Our overall product goal is to produce documents that can be easily understood and used by policy makers and the general public alike. These documents have to show how to translate the plan into a usable format for the region.

The following products will be produced throughout the planning process:

- Informational brochure about the purpose of the planning process
- Bi-monthly status reports of the process
- Technical reports on methodology
- Interim findings report (current pattern projections and cost)
- Documentation of alternative development strategies and techniques
- Model program summary for MPOs

#### **Objectives**

In order to determine the success of the products produced, the evaluation will perform reviews to see if the products:

- Lead to adoption of plans and policies.
- Are easily accessible and usable by policy makers and the public alike.
- Explain the process and make it readily available to transfer to other areas.
- Encourage or create provisions to ensure plan implementation.
- Achieves stakeholder interest and commitment.
- Are consistent with Statewide and MPO process and are directed at achieving desired TCSP outcomes.

#### **Roles and Responsibilities**

After a product's completion, the BCDCOG evaluation staff member will evaluate the effectiveness of the products and the use of the information contained in them.

#### **Performance Measures and Evaluation Methodologies**

After completion of a product, the evaluation staff will review the product's use and success in achieving its intended results and reaching its intended audience. One of the performance measures will be whether the *products lead to adoption of plans and policies*. One of the major goals of the planning process is that the results of the process are adopted and implemented by the region, local governments within the region, as well as by private businesses and industry. Without adoption of the policies and implementation of the recommendations, very little outcome can be expected from the planning process. Widespread acceptance of the policies and recommendations from the planning process will suggest a better chance that the desired outcomes from the planning process will occur. The evaluation of the acceptance of the plan will involve a

compilation of resolutions and letters of agreement for adoption and implementation of the planning effort's policies and recommendations.

In order to encourage adoption of recommendations, the products have to be *easily accessible and usable by policy makers and the public*. The evaluation will survey targeted audience of the product on the ease of understanding and translation of the product into local policy.

Our products will be designed not only to be usable to our local representatives, but also by other regions that may want to learn from our process. In order to *ensure that the product explains the process and is made readily available to transfer to other areas*, many of the documents produced will have two versions, a public report for local use and a technical report, which is more detailed, available for use by other areas and peer review. The technical reports will include process descriptions, excerpts from the ongoing process evaluation, detailed descriptions of the formulas and techniques used to measure costs, full results, and descriptions on how that information is summarized and presented in the public reports. These reports will be made available in both electronic and printed formats. In order to evaluate these documents, the documents will include a survey form to be filled out by the user of the report. A record will be kept of who received the report and follow up calls will be made to organizations that fail to send in the survey form.

Once the planning process is completed, implementation of the process is the next important step, and usually as difficult and time consuming as the creation of the plan itself. One important part of a planning process is the *creation of provisions to promote the plan's implementation*. After the process completion an implementation committee will be appointed to oversee implementation of completed plan. It is hoped that many of the members of the advisory and working teams will agree to serve on this committee. The evaluation will document the number of meetings held by the committee and the actions taken. In turn, the evaluation will document the number of changes to local regulations that have resulted from the planning process and the number of requests by the local governments to the BCDCOG for further assistance on implementing the recommendations in their jurisdictions.

An important aspect to the achieving the desired outcome of the process is that the process *achieves stakeholder interest and commitment*. This will be measured qualitatively through the interviews with participants and the level of commitment they will pledge to implementation. Also, the evaluation will quantify contributions made by groups for the continuation of the process and its implementation.

Table 2: Product Evaluation Table		
Objectives	Performance Measures	Evaluation Methods
<i>Adoption of plans and policies.</i>	<ul style="list-style-type: none"> <li>Adopted plan with shared implementation responsibilities by regional and local authorities.</li> </ul>	<ul style="list-style-type: none"> <li>Compilation of resolutions and letters of agreements for adoption and implementation.</li> </ul>
<i>Product is easily accessible and usable by policy makers and the public alike.</i>	<ul style="list-style-type: none"> <li>Information presented in plan documents is used for policy decisions.</li> </ul>	<ul style="list-style-type: none"> <li>Survey on the usefulness of the documentation of the plan.</li> <li>Document number of requests for additional copies.</li> </ul>
<i>Product explains the process and makes it readily available to transfer to other areas.</i>	<ul style="list-style-type: none"> <li>Information presented in plan documents is used for developing planning processes in other areas.</li> </ul>	<ul style="list-style-type: none"> <li>Survey on the usefulness of the documentation of the plan.</li> </ul>
<i>Provisions exist to promote plan's implementation.</i>	<ul style="list-style-type: none"> <li>Provisions for management and oversight of plan implementation.</li> <li>Feedback process to monitor/adjust implementation as needed.</li> </ul>	<ul style="list-style-type: none"> <li>Document committee meetings to discuss implementation.</li> <li>Feedback from committee resulting in implementation changes.</li> </ul>
	<ul style="list-style-type: none"> <li>Creation of implementation timeline with specific implementation responsibilities.</li> </ul>	<ul style="list-style-type: none"> <li>Document changes to local land use regulations.</li> <li>Document requests for assistance in implementation strategies.</li> </ul>
<i>Achieves stakeholder interest and commitment.</i>	<ul style="list-style-type: none"> <li>Endorsement of results by: <ul style="list-style-type: none"> <li>Participants</li> <li>Other effected parties.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Documentation of public remarks made about the planning process and by whom.</li> </ul>
	<ul style="list-style-type: none"> <li>Participation of stakeholders in plan development.</li> </ul>	<ul style="list-style-type: none"> <li>Interviews with participants and non-participants.</li> <li>Documented contribution of groups – ideas, resources, financial backing.</li> </ul>
<i>Plans are directed at achieving desired TCSP outcomes.</i>	<ul style="list-style-type: none"> <li>Plan contains a clear statement of purpose and need.</li> <li>Plan is consistent with defined goals and objectives of program.</li> </ul>	<ul style="list-style-type: none"> <li>Documents support the TCSP goals.</li> </ul>

## IV. Outcome Evaluation

The outcome evaluation will take place one year and then again five years after project's completion. The analysis will contain projections of outcomes. At the five-year evaluation an analysis of whether future evaluations are necessary will be made.

### Objectives

The evaluation of the planning process will measure both short term results and predict the success of attaining the long term goals of the project.

#### *Short term results:*

1. Implementation of zoning and land use regulations
2. Development of traffic calming and access management plans
3. Development of plans (community preservation, urban design, comprehensive, land use) that integrate environmental protection, land use, and infrastructure planning.
4. Expand awareness of planning processes and opportunities

#### *Long term results:*

1. Result in more efficient development patterns
2. Improve efficiency and safety of transportation systems
3. Promote efficient access to jobs, services, and centers of trade
4. Reduce impacts on the environment

5. Reduce need for costly infrastructure investment
6. Influence private sector development techniques and patterns

### **Roles and Responsibilities**

The BCDCOG staff, after the planning process's completion, will evaluate the effectiveness of the products and the use of the information contained in them.

### **Performance Measures and Evaluation Methodologies**

The procedure to evaluate the outcome of the project will utilize quantitative and qualitative assessments as well as analytic procedures. By using all three techniques the evaluation hopes to not only measure the current outcome of the project, but be able to predict future outcomes based on the policy changes resulting from the planning process. The proposed planning process is designed to change local policies that affect infrastructure investment, community character, and environmental quality. Changes from the policies will not be able to be measured until major development under these policies occurs. In many instances, changes may not become measurable until ten to twenty years after the planning process has been completed.

### ***Quantitative Assessment Techniques***

The BCDCOG has identified several assessment techniques that measure the impact on the quality of the region's transportation system. These techniques are designed to measure the aspects of the goals that are readily measurable such as number of municipalities that have incorporated policies in the plan into their regulations, number of private developers considering use of sustainable development techniques, and analysis of infrastructure project costs (baseline versus TCSP conditions). Using the information that the BCDCOG already tracks, such as number and location of housing starts, location of job creations, location and size of sewer line and system expansions, percent of land cover change over time, traffic counts, ridership data, land use databases, and location of real estate sales trend analyses can be performed. In an effort to gauge whether any changes can be attributed to normal shifts in development patterns, the evaluation will include a survey of other COG areas and changes that they may have noted in their data trends.

### ***Qualitative Assessment Techniques***

The BCDCOG has identified several assessment techniques that measure the impact on the quality of the region's transportation system. These techniques are designed to measure the aspects of the goals that are difficult to measure such as satisfaction with level of service, aesthetics, and preservation of community character. A sampling of the of the techniques proposed include survey of land use regulation changes and how these may affect development patterns, comparison of proposed developments and patterns with existing, interviews with planners, service providers, developers, and environmental community.

### ***Analytic Procedures or Models***

The MPO's regional transportation computer simulation software will be used to assist in projected future growth patterns and to measure the projected performance of the region's

transportation facilities over the next twenty to twenty-five years. Computer simulation will further assist in evaluating the future level of effectiveness of the implemented strategies and techniques designed to more effectively manage growth and improve the efficiency of the region's transportation system.

<b>Table 3: Outcome Evaluation Table</b>		
<b>Objectives</b>	<b>Performance Measures</b>	<b>Evaluation Methods</b>
<i><b>Result in more efficient development patterns. Improve efficiency of transportation system (maximize use of existing infrastructure).</b></i>	<ul style="list-style-type: none"> <li>Percent of trips by non-SOV modes.</li> </ul>	<ul style="list-style-type: none"> <li>Before/after counts &amp; ridership surveys.</li> </ul>
	<ul style="list-style-type: none"> <li>Person-miles of travel per vehicle-mile of travel.</li> </ul>	<ul style="list-style-type: none"> <li>Regional travel model.</li> </ul>
	<ul style="list-style-type: none"> <li>Transit passenger-miles per vehicle revenue-mile.</li> </ul>	<ul style="list-style-type: none"> <li>National Transportation Database</li> </ul>
	<ul style="list-style-type: none"> <li>Avoid need for new major construction                             <ul style="list-style-type: none"> <li>Lane-miles per person</li> <li>Avoided lane-miles of construction</li> <li>Maintain LOS without new facilities</li> <li>Lane miles per registered driver</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>TIP analysis under "baseline" versus "TCSP" condition.</li> <li>Regional travel model: lane-miles required to maintain base level of performance ("baseline" versus "TCSP" condition).</li> </ul>
	<ul style="list-style-type: none"> <li>Total annual infrastructure cost per unit of travel (declining over time).</li> </ul>	<ul style="list-style-type: none"> <li>Analysis of TIP, LRTP, and travel forecasts.</li> </ul>
<i><b>Reduce impacts on environment.</b></i>	<ul style="list-style-type: none"> <li>Criteria pollutants, greenhouse gas emissions.</li> </ul>	<ul style="list-style-type: none"> <li>Emissions based on travel impacts (trips, VMT).</li> </ul>
	<ul style="list-style-type: none"> <li>Community impacts (aesthetics/ design, noise, and community satisfaction).</li> </ul>	<ul style="list-style-type: none"> <li>Satisfaction surveys.</li> <li>Interviews with key local officials.</li> </ul>
	<ul style="list-style-type: none"> <li>Land consumption per unit development (square feet or acres per dwelling unit, job, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>Zoning regulations-permitted densities (with versus without program).</li> <li>Actual versus expected development statistics.</li> <li>Changes from past development trends.</li> </ul>
	<ul style="list-style-type: none"> <li>Accommodation of expected growth within existing urbanized area.</li> </ul>	<ul style="list-style-type: none"> <li>Land use databases, mapping of building permits.</li> </ul>
	<ul style="list-style-type: none"> <li>Wetland/other habitat preservation/ fragmentation:                             <ul style="list-style-type: none"> <li>Amount of preserved habitat space (with versus without program)</li> <li>Connectivity/fragmentation of natural areas</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Pre: Zoning regulations-allowable land use/development patterns (with versus without program).</li> <li>Post: Actual versus expected preserved land.</li> <li>Maps showing natural areas/ ecosystems.</li> </ul>
<i><b>Reduce need for costly infrastructure investment.</b></i>	<ul style="list-style-type: none"> <li>Projected cost savings: Costs of "baseline" versus "TCSP" projects.</li> </ul>	<ul style="list-style-type: none"> <li>Analysis of transportation project programming (Baseline versus TCSP conditions).</li> </ul>
	<ul style="list-style-type: none"> <li>Development of method and/or research study for relating travel or land use changes to infrastructure costs.</li> </ul>	<ul style="list-style-type: none"> <li>Infrastructure cost analysis.</li> </ul>
<i><b>Promote efficient access to jobs, services, and centers of trade.</b></i>	<ul style="list-style-type: none"> <li>Qualitative accessibility measures (by type of activity, population segment), trips per person for all trip purposes.</li> <li>Travel time savings (passenger or freight movements).</li> <li>Improvements in access for specific populations/needs including total population served and number of users of new transit service.</li> </ul>	<ul style="list-style-type: none"> <li>Proximity analysis using GIS or manual calculation.</li> <li>Travel demand models.</li> <li>Project-specific calculations.</li> <li>Usage measurements.</li> <li>Interviews with planners, service providers, etc.</li> </ul>
	<ul style="list-style-type: none"> <li>Economic impacts of project including property values, business sales, and employment.</li> </ul>	<ul style="list-style-type: none"> <li>Time-series analysis (before/after studies).</li> <li>Qualitative analysis (surveys of businesses &amp; property owners).</li> </ul>
<i><b>Influence private sector development techniques and patterns to reflect sustainable development objectives.</b></i>	<ul style="list-style-type: none"> <li>Implementation of policies/ incentives to affect development patterns.</li> </ul>	<ul style="list-style-type: none"> <li>Review of changes in general plan, zoning, tax policies, impact fees, etc.</li> </ul>
	<ul style="list-style-type: none"> <li>Agreements with private developers.</li> </ul>	<ul style="list-style-type: none"> <li>Interviews with local officials.</li> <li>Review of agreements.</li> </ul>
	<ul style="list-style-type: none"> <li>Changes in development patterns/ trends:                             <ul style="list-style-type: none"> <li>Types and character of land use</li> <li>Densities</li> <li>Location of new development</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Compare new developments to existing developments.</li> <li>Compare new developments in region to those elsewhere in the state.</li> <li>Evidence of development interest in affected area.</li> </ul>